

Presupposition on Times and Degrees: The Semantics of Mandarin *hái*¹

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Mandarin adverb *hái* allows for two main interpretations when associated with gradable properties. Descriptive work usually discriminate between ‘temporal’ and ‘comparative’ readings of *hái*, while the semantic core of the adverb has been defined in terms of scalarity. In this paper, our purpose is to give an understanding of the topic by providing the basis for an analysis of the adverb at the syntax-semantics interface. While subscribing to the generalization that *hái* is restricted to ordered domains, we will propose to characterize the adverb as a repetitive operator, that is, an additive operator the event domain; we will show that the possibility for *hái* to associate to gradable properties in comparative constructions can be explained on the bases of its repetitive use.

1. Introduction

Mandarin Chinese adverb *hái* can receive three main interpretations when associated with the same predicate, as it is the case for the gradable predicate *niánqīng* ‘(to be) young’ in (1) below.

(1) Zhāngsān hái niánqīng.
Zhangsan HAI young

The adverb in (1) conveys three distinct interpretations, which are partially disambiguated in (2)a-c, and which are traditionally associated with the so-called ‘temporal’ (2a), ‘comparative’ (2b) and ‘borderline’ (2c) readings of *hái*.

(2) a. Zhāngsān hái (hěn) niánqīng (tā kěndìng bu néng zhīdào!)
Zhangsan HAI very young he of-course NEG possible know
‘Zhangsan is still (very) young (of course he cannot know that!’

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geng, that the basic characterization can be maintained also in this context. Finally, we will conclude by considering the borderline reading in section 4.

1.1 Ordered domains

Before turning to the analysis of *hái*, we think it is important to make explicit some of the assumptions that underline the formal analysis proposed in the following section.

Because of their intriguing semantic properties, additive adverbs such as Mandarin *hái* have been the object of several analyses in many languages. We won't even attempt to give a critical review of this abundant literature here²; for the present purpose, it may suffice to note that the most part of the existing accounts attribute to these adverbs a polysemic nature, which shows up in their ability to modify properties associated with different domains. To build a unified lexical entry for these items would then mean to reduce the differences between the domains to a common ground.

The hypothesis that the domain of T(ime) and the domain of D(egree) are conceptually similar is not a new one, and has been largely exploited, for instance, in recent semantic work that builds on the notion of graduation to explain aspectual alternations in the VP³. As far as we are concerned, the similarity between the two domains can be considered to be a structural one: both T and D denote a totally ordered set of abstract individuals that, for formal purposes, have been converted into the logical types *t* and *d*, respectively. Concerning the domain of Time, the ordering relation is generally taken to be one of precedence (Landman 1991); although in the case of Degree, as we will see, the matter seems to be more complicated, we will assume for now that the orientation of the scale is the same. The totally ordered set of times and degrees can thus be represented as in (4).

$$(4) \quad (I, <) = \forall i, i' \in I [i \neq i' \ \& \ ((i < i') \vee (i' < i))]$$

The definition in (4) represents the relation *<* as an asymmetric and irreflexive relation, inducing a total order (or scale) on the set *I*, that, given what we have said, can be identified both with T or D. We will see in section *** that the condition of irreflexivity should be dropped when degrees are paired with concrete individuals in the denotation of gradable predicates, since one must allow somebody to be, for instance, as tall as himself. But since nobody is taller than himself, the definition in (4) will do for comparison of majority, which will be our main concern in the following discussion.

² But see, among others, König (1977), Löbner (1989,1999), Michaelis (1993), Ippolito (2004) for German languages, and Borillo (1984), Tovena (1996) for Romance languages.

³ Cf. for example the 'affectedness' account of (a)telicity by Krifka (1998) or the scalar analysis of achievements by Hay et al. (1999).

2. Temporal *hai*

Considering the interpretation of (2a), the generalization seems to be that the adverb receives an interpretation of continuity when the verbal predicate *niánqīng* ‘(to be) young’ is understood to be subject to a change in time (5a). This constraint is shown to be relevant by the fact that the adverb is infelicitous with predicates that typically do not allow for a change, such as *lǎo* ‘(to be) old’ in (5b).

- (5) a. Zhāngsān hái niánqīng, děng yì huì tā jiù huì lǎo (yì diǎn).
Zhangsan HAI young wait a while he then MOD old a little
 ‘Zhangsan is still young, he will be old(er) in the future.’
- b. #Zhāngsān hái lǎo (děng yì huì tā jiù huì sǐ).
Zhangsan HAI old wait a while he then MOD die
 (‘#Zhangsan is still old, he will die in the future.’)

The truth value and felicity conditions of (5a) can thus be expressed informally as in (6).

(6) Temporal *hai*.

‘Zhāngsān hái niánqīng’ is true under a temporal interpretation if ‘Zhangsan is young’ is true at t and there is another point in time t' , which precedes t , for which the proposition is also true.

If the characterization we give in (6) is correct, *hái* must be interpreted as an additive item, which contribution to the sentence is that of an ordered presupposition. The definition still needs to be made more precise, in particular for what concerns the aspectual properties of the predicate, in order to account for the continuative reading of the adverb.

The first observation is that the predicate in (5a) denotes a state, that is, a predicate that is traditionally considered a property of times rather than a property of events. If we look at the data, however, it seems that structural conditions on the predicate are in fact more relevant for the acceptability of *hai* than mere lexical distinctions. Eventive predicates, such as the (a)telic activities in (7)a,b are fine if they are modified by the progressive operator *zai* (Smith 1991), making them unbounded, strictly homogeneous events.

- (7) a. Zhāngsān hái zai shuǐjiào.
Zhangsan HAI PROG sleep
 Zhangsan is/was still sleeping.

- b. Zhāngsān hái zai hē dìyī wǎn tāng.
Zhangsan HAI PROG drink first CL.bowl soup
 Zhangsan is/was still drinking the first bowl of soup.

The relevance of aspectual markers for acceptability shows that grammatical aspect plays a role. We could thus suppose that, in an extended VP projection (Travis 2000), the adverb falls in the outer AspP area.

(8) hai [(- bound) VP]

The account we give for temporal *hai* as a predicate of intervals has two more consequences. First, it allows us to explain the infelicity of the adverb (and of aspectual adverbs in general, as observed in the literature) with so called ‘non-reversible’ predicates like *lǎo* ‘(to be) old’ in (5b). In the discussion of example (5b), we dismissed the problem by saying the such predicates are not subject to temporal change; in fact, the correct characterization in our framework would be to say that ‘non-reversible’ predicate do not easily allow for a representation as convex intervals. The predicate ‘to be old’ in (5b), for instance, cannot reach an end without implying also the loss of its subject; this pragmatic condition is, to our mind, what blocks the possibility of a change.

Finally, the characterization of *hái* in (8) has a consequence also for the hypothesis at the origin of our analysis. We accepted as a working hypothesis that the three interpretations in (2)a-c depend on the type of the predicate and the kind of predication, and are not a matter of structural ambiguity of *hái* as aspectual adverb or a degree modifier. In the next section, where we will analyze the semantics of *hái* as a modifier of gradable predicates, we will tackle this matter in more detail through a comparison with the degree adverb *gèng*.

3. *Hái* in comparative constructions.

In this section, we will concentrate on the semantic interpretation of *hái* in comparative constructions like (2b). Despite the great amount of literature devoted to aspectual adverbs like *hái*, the occurrence of these items in comparative constructions has often been neglected; on the contrary, we believe that the analysis of this occurrence of the adverb will provide a good way to test the assumptions we made for the temporal domain.

Let’s consider once more the interpretation of *hái* in (5b), repeated here in (9).

- (9) Zhāngsān (bǐ Lìsì) hái niánqīng.
Zhangsan than Lisi HAI young
 ‘Zhangsan is still younger (than Lisi).’

The contribution of *hái* in (9) seems to consist in the inference that the two compared items possess the property to be young at least to a positive degree. The inference is due to the adverb, as the contrast between (10a) vs (10b) shows.

(10) a. Lìsì bǐjiào ài, Zhāngsān bǐ tā gāo.
Lisi rather short Zhangsan than him tall
 Lisi is rather short, Zhangsan is taller than him.

b. # Lìsì bǐjiào ài, Zhāngsān bǐ tā hái gāo.
Lisi rather short Zhangsan than him HAI tall
 (#Lisi is rather short, Zhangsan is still taller than him)

Contrasts such as the one in (10) motivate the interpretation of *hái* as a scalar adverb (Liu 2001), since *hái* is supposed to convey the information that the standard Lisi is positioned high on the scale defined by the property *gāo* ‘(to be) tall’. However, the contribution of the adverb, as we will show, must be stated in different terms. We will then describe informally the meaning contribution of *hái* in (9) in the following, more general way.

(11) *Comparative hái.*

Zhāngsān bǐ Y hái niánqīng’ is true iff ‘Zhāngsān bǐ Y niánqīng’ is true and ‘Y niánqīng’ is also true.

To understand the meaning contribution of the adverb in this context, we need to look more carefully to the syntax and semantics of comparatives constructions. Here we will concentrate on comparatives of inequality, since *hái* is restricted to this context, and we will take as prototypical form in our analysis the comparative of majority.

The basic difference between gradable and non-gradable properties is that the former denote sets of individuals which are (partially) ordered along a relevant dimension (Klein 1980). As such, each positive property, like *niánqīng* ‘(to be) young’ in (9), extensionally denote a set of individuals (those for which the property to be young holds in a given model), that in turn represents a convex interval on the dimensional scale of ‘youthfulness’. We will call this interval the ‘comparison class’ for the subject Zhangsan in (9).

We will point out here two main aspects of comparatives which seem to be shared by most languages. First, comparison classes are not equivalence classes: that is, two or more individuals belonging to the same comparison class, while sharing the same positive property, can be ordered one with respect to the other (12).

- (12) Zhāngsān hé Lìsì dōu gāo, (kěshi) Zhāngsān bǐ Lìsì gāo (yì diǎn).
Zhangsan and Lisi both tall but Zhangsan than Lisi tall a little
 Zhangsan and Lisi are both tall, but Zhangsan is (a bit) taller than Lisi.

On the other hand, the same lexeme denoting the positive form of the predicate is often ambiguous between a positive and a dimensional reading. Consider, in fact, (13) vs. (12).

- (13) Zhāngsān hé Lìsì dōu ài, (kěshi) Zhāngsān bǐ Lìsì gāo (yì diǎn).
Zhangsan and Lisi both short but Zhangsan than Lisi tall a little
 Zhangsan and Lisi are both short, but Zhangsan is (a bit) taller than Lisi.

In the comparative sentence (13), the same property *gāo* ‘(to be) tall’ characterizing Zhangsan and Lisi in (12) can be used to denote the dimension along which two non-tall individuals can be compared. In this sense, Zhangsan can be said to be ‘taller’ than Lisi, even when he himself is not positively tall. This apparent contradiction can be solved by postulating a polar opposition among positive (*gāo* ‘(to be) tall’) and negative (*ài* ‘(to be) short’) predicates along the same scale (Kennedy 2001), or simply as implying a marked positive form, capable of denoting also the scalar dimension (GAO, ‘tallness’). In this paper, we will adopt the latter view.

Drawing conclusion up to now, we see that the analysis of *hái* in terms of a repetitive adverb restricted to a convex interval can be plausibly extended to gradable predicates, once we take gradable properties to denote convex interval along a dimensional scale. The present analysis in fact accounts for the interpretation of *hái* that we make explicit in (11): to say that the two compared items must share the same positive property means, in the framework we adopted, that they belong to the same interval on the scale.

There seems to be still an unsolved problem, though. The analysis we outlined above does not exclude the possibility that *hái* behave like a ‘true’ scalar adverb, contributing explicit information about the two compared items on the scale. To make this point more explicit, we will make a contrastive comparison of *hái* and the scalar adverb *gèng*, which, while conveying a similar interpretation in some cases, behaves quite differently in many respects.

3.1 The scalar adverb *gèng*

The adverb *gèng* can be defined a degree adverb which is constrained, in general, to comparative constructions. In this context, *gèng* leads to an interpretation that looks at first sight very similar to that we have seen for *hái* in (9), cf. also (10b) vs. (14b) below.

- (14) a. Zhāngsān bǐ Lìsì gèng gāo.
Zhangsan than Lisi GENG tall
 ‘Zhangsan is even taller than Lisi.’
- b. # Lìsì bǐjiào ài, Zhāngsān bǐ tā gèng gāo.
Lisi rather short Zhangsan than him GENG tall
 (‘#Lisi is rather short, Zhangsan is still taller than him’)

Two contexts, however, allow seizing the semantic difference between the two adverbs.

First, contrary to *hái* (15a), *gèng* does not allow the differential interval between the two compared item to be expressed by a measure phrase denoting a specific amount, such as *sān cùn* ‘three inches’ in (15b), cf. (Paris 1988).

- (15) a. Zhāngsān bǐ Lìsì hái gāo sān cùn.
Zhangsan than Lisi HAI tall three inch
 ‘Zhangsan is still taller than Lisi (by three inches).’
- b. *Zhāngsān bǐ Lìsì gèng gāo sān cùn
Zhangsan than Lisi GENG tall three inch

The second context, as noted in particular by Yeh (1998) and Yu & Xia (2008), is provided by ‘hyperbolic’ comparative sentences as (16)a-b, in which the two compared items do not generally belong to comparable classes.

- (16) a. Zhāngsān ah, bǐ húli hái jiǎohuá.
Zhangsan EX than fox HAI smart
 ‘Zhangsan is (still) smarter than a fox!’
- b. #Zhāngsān ah, bǐ húli gèng jiǎohuá
Zhangsan EX than fox GENG smart

We will show that the difference between the two adverbs in these two linguistic contexts help understanding the semantics of *gèng* and *hái*, and provides more evidence for the analysis we proposed for the latter.

Let’s consider the case of hyperbolic comparatives first. If we follow the hypothesis underlying our analysis, the semantic contribution of *hái* in (16) is to state explicitly that the subject and the comparison standard belong to the same interval on the scale, i.e. to the same comparison class. This could seem odd in the case of hyperbolic comparative propositions, whose rhetoric function is rather to state the extraordinary status of the subject by comparing it with an unusual standard, not belonging to the same

class of comparison. In fact, if *hái* is not present in the sentence, hyperbolic comparatives like (16) are less acceptable in Mandarin.

- (17) ??Zhāngsān ah, bǐ húli jiǎohuá.
Zhangsan EX than fox smart

It seems, then, that *hái* in this context has the rhetoric function we would expect: the adverb makes explicit that the property *jiǎohuá* ‘(to be) smart’ in (16) should be interpreted as denoting an interval on the scale of smartness which includes both Zhangsan and the prototypical fox. The scalar effect is then achieved in this way: by choosing an idiomatic standard and asserting that the subject can be compared with it because it belongs to the same comparison class, the speaker implicates that the subject also possess the relevant property to a high degree.

Why is it the case that *gèng* is then infelicitous in the same context? We venture the hypothesis that the infelicity of *gèng* is due to the fact that, contrary to *hái*, *gèng* is a degree adverbial with scalar implications.

Recall that, contrary to *hái*, *gèng* only modifies gradable predicates, and, as a degree adverb, is restricted in particular to comparative propositions. The bare (i.e. unmodified) gradable predicate is generally taken to be ‘inherently’ comparative in Mandarin (Li & Thompson 1981, a.o.), that is, a silent comparative morpheme, which introduces the standard *bǐ*-phrase, can be supposed to be present in (18a). The correspondent non-comparative form is marked, either by contrastive focus or, more frequently, by degree adverbials, such as *hěn* ‘very’ in (18b)⁴.

- (18) a. Zhāngsān gāo.
Zhangsan tall
 ‘Zhangsan is taller’

- b. Zhāngsān hěn gāo.
Zhangsan very tall
 ‘Zhangsan is (very) tall’.

We take the (silent) comparative morpheme to have the role of introducing compositionally the standard of comparison.

The fact that *gèng* is restricted to comparative constructions seems then to imply that the adverb modifies the standard of comparison. We would propose to characterize the scalar contribution of *gèng* in this way: the adverb conveys the information that the

⁴ The adverb *hěn* in (12b), if unstressed, loses its interpretation as degree adverbial meaning ‘very’, and seems to have the sole function to mark the non-comparative reading of the predicate. As such, it has been compared (see e.g. Sybesma 1999) to the null *pos* operator that ensures the positive interpretation of gradable predicates in relational analyses (Stechow 1984).

standard must be considered as the highest element of its comparison class in a given context. By saying that the subject surpasses the standard, the speaker thus implies that it is also outstanding all comparable items in the same context, and that, consequently, the subject and the standard do not belong to the same comparison class.

Once we accept to state the semantics of *gèng* in these terms, the restrictions we noted in (15b) and (16b) above can receive an explanation.

First, *gèng* cannot ‘rescue’ hyperbolic comparatives the way *hái* does. Rather than implying by its meaning contribution that the two items belong to the same comparison class, *gèng* builds its scalar effect on the semantics of basic comparatives, which, as we have seen, are independently infelicitous when the subject and the standard are pragmatically not comparable.

The unacceptability of *gèng* in sentences like (15b), where the differential between the two compared items is expressed by a specific dimensional phrase, may also fall into the account of the adverb that we proposed. Comparatives of inequality always imply, as part of their semantic content, the existence of a differential between the two compared items. The differential may surface explicitly as a measure phrase, cf. (19)a,b.

(19) a. Zhāngsān bǐ Lìsì gāo yì diǎn.
Zhangsan than Lisi tall a little
 ‘Zhangsan is a bit taller than Lisi’

b. Zhāngsān bǐ Lìsì cōngmíng yì diǎn.
Zhangsan than Lisi intelligent a little
 ‘Zhangsan is a bit more intelligent than Lisi.’

The measure phrase *yì diǎn* ‘a little’ in (19)a,b explicitly denote the extent of the interval representing the differential between Zhangsan and Lisi along the scale of tallness and intelligence, respectively. So called ‘dimensional’ properties like *gāo* ‘(to be) tall’ in (19a) also allow for measure phrases such as the measure phrase *sān cùn* ‘three inches’ in (20)⁵, denoting more specifically the extent of the interval along the gradable dimension.

(20) Zhāngsān bǐ Lìsì gāo sān cùn
Zhangsan than Lisi tall three inch
 ‘Zhangsan is a bit taller than Lisi’

As we have seen in (15b) above, *gèng* is unacceptable in sentences where the differential is expressed by specific measure phrases like *sān cùn* ‘three inches’(21a); on

⁵ See Bierwisch & Lang (1989).

the other hand, it can occur with non-specific differential measure phrases, like *yi diǎn* ‘a little’ in (21b).

(21) a. *Zhāngsān bǐ Lìsì gèng gāo sān cùn
Zhangsan than Lisi GENG tall three inch

b. Zhāngsān bǐ Lìsì gèng gāo yì diǎn
Zhangsan than Lisi GENG tall a little
 ‘Zhangsan is even a bit taller than Lisi’

From a syntactic point of view, both *sān cùn* ‘three inches’ and *yì diǎn* ‘a little’ are two post-verbal phrases expressing a measure complement. The reasons for the contrast of acceptability between (21a) vs. (21b), then, should rather be found on the semantic side.

Once more, we believe that the semantic characterization we gave for the adverb may help in finding an explanation. Recall that in our analysis *gèng* contributes the information that the standard and the subject of comparison do not belong to the same interval on the dimensional scale. This may be the reason why specific differential measure phrases are ruled out: it is impossible to measure out the interval intervening between two standards that do not belong to the same scale. On the contrary, the mere existence of a differential, which is always implied, may be explicitly stated also in this case, as (21b) shows.

Finally, we should note that, if our analysis is on the right track, the grammaticality of *hái* in (15a) follows: contrary to *gèng*, the adverb *hái* asserts that the compared items both belong to the same interval on the scale. The quantification of the differential interval is thus not excluded.

4. Borderline reading of *hái*.

The last example of occurrence of *hái* that we need to consider is the so called ‘borderline’ reading of the adverb, exemplified by (2c), repeated here in (22).

(22) Zhāngsān hái (suàn) niánqīng.
Zhangsan HAI to-consider young
 ‘Zhangsan is still (to be considered) young.’

The borderline reading of the adverb is supported by the intuition that Zhangsan in (22), while belonging to the group of young people, represents in some way a ‘marginal’ example of youth (Liu 2001). Being a marginal example of youth means that, in the denotation of ‘young’ in a particular context, one must include other individuals which are better example of youth than Zhangsan, i.e. that are probably younger than him.

While sentence in (22), on the basis of this shared intuition, has sometimes be considered a special case of comparative construction (one in which the comparison standard is left implicit), we will maintain here that the existence of a comparison standard is not due to the (silent) presence of a comparative morpheme, but it is only the result of the presupposition of *hái*.

We will then propose to describe the meaning contribution of *hái* in (22) as in (23).

(23) *Borderline hái*.

‘Zhāngsān hái niánqīng’ is true iff ‘Zhāngsān niánqīng’ is true and in the denotation of ‘niánqīng’ there is at least another individual *y* for which ‘*y* hái niánqīng’ is true.

Under this view, the characterization of *hái* that we proposed for the temporal and comparative readings of the adverb can be maintained also in this context, but with one important difference. If we accept the definition of borderline *hái* we give in (23), in fact, we should also admit that the ordering relation between the presupposed and asserted item be reversed. The presupposed item *y* is interpreted as possessing the relevant property to a *higher* degree than Zhangsan: in other terms, we could say that the orientation of the scale represented by the predicate ‘(to be) young’ is opposite to that of comparatives of superiority, going from ‘young’ to ‘old’ rather than from ‘old’ to ‘young’.

If his observation is correct, then, the borderline reading of *hái* may confirm another important point that we stressed in the introduction: *hái* is not inherently scalar, in that it does not introduce an order among the alternatives, but rather relies on the order independently structuring the domain.

5. Conclusions

In this paper, we sketched a proposal for a unified analysis of the adverb *hái* in terms of a repetitive adverb, that is, an additive restricted to an interval in an ordered domain. In our analysis, *hái* contributes the information of the existence of a presupposed item *y*, of the same type of the asserted one and ordered with respect to it by a relevant ordering relation.

Following this hypothesis, we showed that the interpretation of *hái* in its temporal, comparative and borderline readings can be reduced to the same operational scheme (24).

(24)



The proposed analysis brings two consequences that make it differ from previous ones on two important respects: first, *hái* does not convey any explicit information about

the position of (a) and (b) on the scale defined by the interval. This point has been made clear in particular through a comparison between *hái* and the scalar adverb *gèng* in the context of comparative constructions. In paragraph 3.1, we proposed a contrastive comparison between *hái* and the adverb *gèng*, which we analyzed as a scalar degree adverbial. We argued in particular that a similar scalar effect is conveyed by the two adverbs by exploiting two different strategies. In the context of gradable predicates denoting intervals on a dimensional scale, *hái* contributes the information that both the presupposed and the asserted item belong to the same interval identified by the positive reading of the predicate. On the contrary, *gèng* is limited to comparative constructions, and in this case scalar effect is obtained by explicit information about the position of the standard on the scale.

The second consequence is that *hái* does not introduce explicitly an ordering among the alternatives, but rather relies on the ordering independently structuring its domain of application. For these reasons, we defended the hypothesis that *hái* cannot be considered a scalar adverb, but rather an additive adverb specialized for an ordered domain.

REFERENCES

- BORILLO, ANDREE (1984) La négation et les modifieurs temporels: une fois de plus encore. *Langue Française* 62. 37-59.
- BIERWISCH, MANFRED and EDWARD LANG (1989) *Dimensional Adjectives*. Berlin: Springer.
- HAY, JENNIFER, CHRISTOPHER KENNEDY and BETH LEVIN (1999) Scale structure underlies telicity in degree achievements. In *Semantics and Linguistic Theory 9*, ed. by Tanya Matthews and Devon Strolovitch, 127-144. Ithaca, NY: CLC Publications.
- IPPOLITO, MICHELA (2004) An analysis of *still*. *Proceedings of SALT XIV*.127-144. Ithaca, NY: Cornell University Press.
- KENNEDY, CHRISTOPHER (2001) Polar opposition and the ontology of degree. *Linguistics and Philosophy* 24 (1). 33-70.
- KLEIN, EWAN (1980) A semantics for positive and comparative adjectives. *Linguistics and Philosophy* 4 (1). 1-45.
- KRIFKA, MANFRED (1998) The origins of telicity. In *Events and Grammar*, ed. by S. Rothstein, 197-235. Dordrecht: Kluwer.
- KÖNIG, EKKEHARD (1977) Temporal and non-temporal uses of *noch* and *schon* in German. *Linguistics and Philosophy* 1.173- 198.
- LANDMAN, FRED (1991) *Structures for Semantics*. Dordrecht: Kluwer.
- LI, CHARLES N. and SANDRA THOMPSON (1981) *Mandarin Chinese: A Functional Reference Grammar*. Berkley: University of California Press.

- LIU, FENG-HSIN (2001) The scalar particle *hai* in Chinese. *Cahiers de Linguistique – Asie Orientale* 29 (1). 41-84.
- LÖBNER, SEBASTIAN (1989) *Schon, erst, noch* : an integrated analysis. *Linguistics and Philosophy* 12 (2). 177- 212.
- LÖBNER, SEBASTIAN (1999) Why German *noch* and *schon* are still duals. *Linguistics and Philosophy* 22 (1). 45- 107.
- MICHAELIS, LAURA A. (1993) Continuity across three scalar domains: the polysemy of adverbial *still*. *Journal of Semantics* 10. 193-237.
- PARIS, MARIE-CLAUDE (1988) Encore *encore* en chinois: *hai* et *haishi*. *Cina* 21. Reprinted in Paris, M.-C. (2003) *Linguistique chinoise et linguistique générale*, Paris : L'Harmattan
- SMITH, CARLOTTA (1991) *The Parameter of Aspect*. Dordrecht: Kluwer.
- STECHOW, ARNIM VON (1984) Comparing semantic theories of comparison. *Journal of Semantics* 3 (1). 1-77.
- SYBESMA, RINT (1999) *The Mandarin VP*. Dordrecht: Kluwer.
- TOVENA, LUCIA M. (1996) The context sensitivity of Italian adverb *ancora*. *Proceedings of ConSOLE III*, 231-246. Rijks Universiteit Leiden.
- TOVENA, LUCIA M. and MARTA DONAZZAN (2008) On ways of repeating. *Recherches Linguistiques de Vincennes 37: Aspect et Pluralité Verbale*.
- TRAVIS, LISA (2000) Events structure in syntax. In *Events as Grammatical Objects: the Converging Perspectives of Lexical Semantics and Syntax*, ed. by Carol Tenny and James Pustejovsky. 145-185. Stanford, CA: CLSI Publications.
- YEH, MENG (1998) On *hai* in Mandarin. *Journal of Chinese Linguistics* 26 (2). 236-280.
- YU, LICHANG AND QUN XIA (2008) Bijiaoju he biniju shixi (On the differentiation between comparative sentence and analogous sentence). *Zhongguo yuwen* (1). 14-19.